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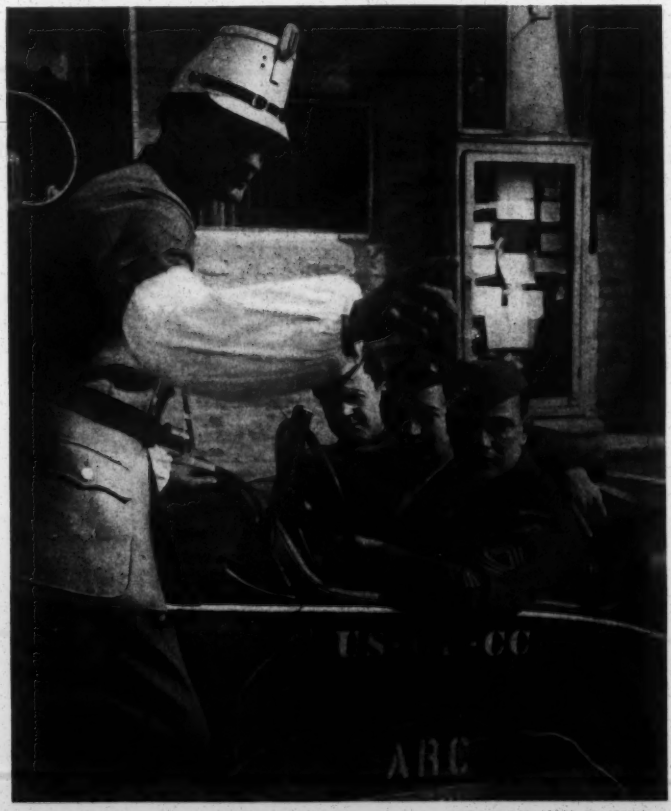

AMERICAN RED CROSS BY ATKINS

YANKS IN BERLIN TAME A FLEET GERMAN RACING CAR INTO A SIGHT-SEEING BUS

White oversleeves give the German policeman's arms high visibility as he points the way through bomb-scarred Berlin for this trio of young Americans (Bulletin No. 1).

Bulletin No. 1, October 11, 1948

Berlin Strife Retards Reconstruction

DIVIDED Berlin, center of world interest as the testing ground of the Western Allies and the Soviet Union, is still digging its way out of ruins and rubble.

Germany's once-proud capital was a jumble of twisted steel and shattered masonry at the end of World War II. Workers have cleared many of the streets (illustration, cover) by piling up the wreckage. Damaged houses have been repaired and some new ones built of bricks salvaged from the debris. But recent estimates indicate that, even under favorable circumstances, it may take as many as 50 years to restore the city.

A Hub of Continental Traffic

If Berlin is returned eventually to its old position of administrative and industrial leadership, the tremendous reconstruction job will eclipse the many other building booms the city has known.

Berlin developed as a settlement in medieval times because of its central and accessible situation on the flat plains of northern Germany. The River Spree, which flows through the city, was connected by canals with the Oder, to the east, and the Elbe, to the west. Berlin became the center of a network of railways, waterways, and superhighways. In time the city, which now is split into four international zones, was outstanding as a hub of national and continental traffic.

In 1871 Berlin was made the capital of Germany. Long before that date, the city had served as the seat of government of Brandenburg, and then of Prussia—political units which were most important in bringing about the development of the German Empire.

Under the Great Elector of Brandenburg, Berlin's population in 1688 had been about 20,000. As headquarters of the powerful Prussian kings, the city expanded spectacularly. By 1850, nearly half a million people lived in this crowded, lively metropolis of palaces and parks.

Prewar Berlin Ranked Next after New York and London

Berlin's career as capital of the united German Empire began with extensive modernization. Streets were broadened and paved. New public buildings and apartment houses grew up in the heavy, four-story blocks that were to characterize the city. With its architectural pattern set in the ornate style of the late 1800's, Berlin had become a bustling civic giant by the outbreak of the first world war.

At the beginning of World War II, the German capital was the largest city on the European continent, the fourth largest in the world. Its 340-square-mile area gave it the distinction of being the world's most extensive city.

Although Berlin was not damaged physically during World War I, it suffered considerably in 1918 and after from political turmoil and poverty. Its population dropped to half the prewar figure of nearly four million.

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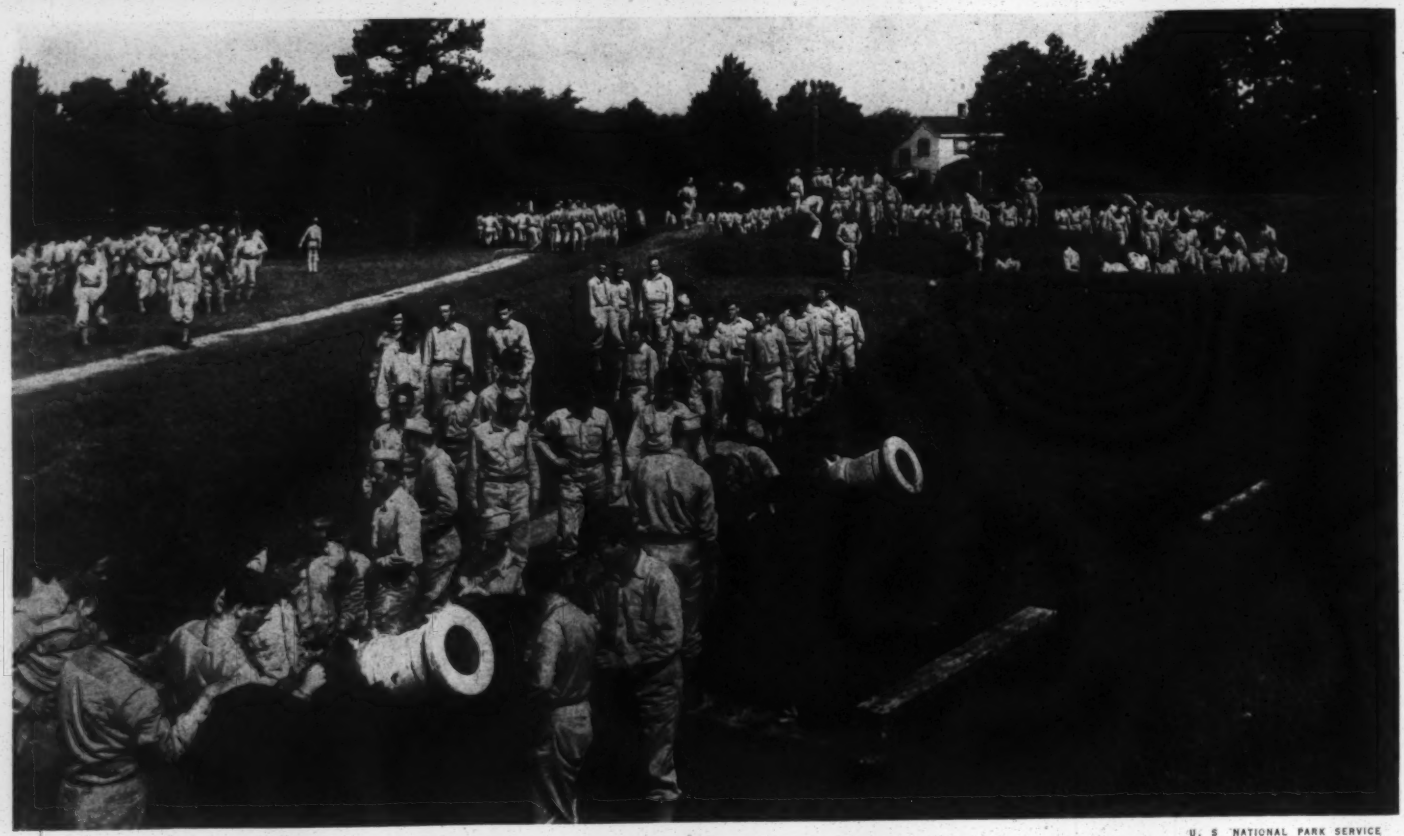

U. S NATIONAL PARK SERVICE

UNITED STATES COAST ARTILLERYMEN VISIT THE YORKTOWN SCENES OF TRIUMPH OF GENERAL WASHINGTON'S ARMY

During the Siege of Yorktown, these gun emplacements and breastworks—the Grand French Battery—were manned by French allies. When Lord Cornwallis surrendered, virtually ending the Revolutionary War, his defeated men marched past here to Surrender Field, where they laid down their arms (Bulletin No. 5).

Hyderabad Holds India's Famed Cave Temples

HYDERABAD State, which recently yielded to troops of the Indian Union after five days of military action, has now been promised an election to decide its political alignment. It was virtually the last of 562 princely Indian states to hold out against accession by either of the year-old dominions—India and Pakistan.

In area, population, material wealth, and historical and religious importance, this landlocked state that spreads almost completely across the Deccan plateau in south-central India is outstanding. Glories of earlier civilizations, centered in the cave-cathedrals of Ajanta and Ellora, make it one of the world's rich regions archeologically.

Nizam Is Billionaire

Ruled for 37 years by its present nizam, Hyderabad compares roughly in area and population to Pennsylvania and Ohio combined. Six-sevenths of the 17,000,000 population is Hindu. The proposed plebescite is expected to follow religious lines, practically assuring a vote in favor of joining the Dominion of India. But the nizam and his nobles are of the Moslem one-seventh. This small ruling group now owns almost two-fifths of the land.

Despite this arrangement, which found the ruler adding cash, bullion, jewels, and other property to coffers that make him a billionaire, the lot of Hyderabad's masses has been improved through the nizam's reign. Irrigation dams have advanced farming, cottage workers in textiles have benefited from special training (illustration, next page), and new industries have been introduced. Osmania University and an expanding school system are working to lift the literacy level, an undertaking of some difficulty since the Hindus of Hyderabad are split into three language groups.

Capital of the state is Hyderabad city, fourth largest in all India, comparing with Pittsburgh in size. Together with near-by Secunderabad, seat of the state's military forces, it was the goal of the invading drive. The main streets are like wheel spokes radiating from a hub formed by the mosque of Char Minar. Beautiful palaces and squalid huts lie within the city's walls.

Famous "Cave-Cathedrals" 200 Miles from Bombay

Surrounded by gleaming government buildings and pretentious establishments of his nobles, the nizam lives in a comparatively small home and rides in a prewar automobile. Two of his sons have married Turkish royalty, strengthening ties within the Moslem world. The nizam takes pride in one of his titles—"Faithful Ally of the British Government."

The richly sculptured cave-cathedrals of Ajanta and Ellora are part of the rock hills 200 miles northeast of Bombay. This northwest corner of Hyderabad, which includes the state's second city, Aurangabad, fell to Indian troops in the first two days of recent operations.

Carved throughout one millennium, then forgotten for the next, the rock-hewn temples were rediscovered by British soldiers a century ago. At Ajanta, five cathedrals and 24 monasteries follow in line in a sweeping

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Then building boomed again. Near the end of the 1920's, it was reported that 40,000 houses a year were going up, as civic facilities expanded for a population which was to number 4,300,000 by 1939.

U. S. ARMY SIGNAL CORPS, OFFICIAL

YOUNG REFUGEE BOWS HIS HEAD TO MAKE NECKWAY FOR THE DDT

In a Berlin camp for homebound refugees, everyone is dusted with DDT as a safeguard against disease.

The Nazi rise to power brought still another surge of construction. Architectural forms of this period have been called "theatricals in masonry." Among buildings completed before World War II were the air ministry and the showy chancellery, now a gutted ruin along the Wilhelmstrasse.

The remains of the once imposing government buildings of downtown Berlin—the hardest hit—are mostly within the Russian occupation zone in the east. The United States section, which includes Templehof airfield, extends south and southwestward.

NOTE: Berlin appears on the National Geographic Society's map of Germany and Its Approaches. Write the Society's headquarters, Washington 6, D. C., for a map price list.

See also, in the *National Geographic Magazine* for January, 1947, "What I Saw Across the Rhine;" "War's Wake in the Rhineland," July, 1945*; and "Changing Berlin," February, 1937. *(Issues marked with an asterisk are included on a special list of Magazines available to teachers in packets of ten for $1.00).*

Bulletin No. 3, October 11, 1948

Expedition Gets First Deep-Sea Color Views

SCIENCE now has the beginning of a candid-camera record, in color and black-and-white, of life at the bottom of the sea. The first and only deep-sea color photographs were recently brought back from the Mid-Atlantic Ridge by the joint National Geographic Society—Woods Hole Oceanographic Institution—Columbia University expedition. Previous undersea color shots have been limited to relatively shallow waters.

A special camera rig devised by Dr. Maurice Ewing, professor of geology at Columbia University, is responsible for the pioneer photography. With technical assistance from Robert F. Sisson, National Geographic Society staff photographer, several successful exposures were made in depths up to three miles. Dr. Ewing, expedition leader, also headed a 1947 expedition under the same auspices.

Film Exposed when Camera Rig Strikes Ocean Floor

Each shot shows 36 square feet of the ocean floor. Revealed are such features as a track or path going completely across one picture, a strange hole in another, and, in still another, rippled formations of the ocean floor such as are often seen on sand beaches. As more and more is learned of oceanography, these markings will take on more meaning.

Color and black-and-white cameras, encased in watertight aluminum cylinders, were fastened lens-down to a long pole. Slightly below, batteries and flash bulb were secured. The pole was lowered by a winch. When it struck bottom a trigger mechanism lighted the bulb and simultaneously opened the shutters of the two cameras. Each picture represents hours of work in unreeling and reeling the line over the side of the *Atlantis*, the specially equipped ketch which carried the expedition from its home port of Woods Hole, Massachusetts, to the Azores and back.

A great part of the eight-week voyage was spent over the Mid-Atlantic Ridge, a rugged but dimly mapped mountain chain that lines the ocean floor from Iceland to Antarctica. More will be known about this submerged world after scientists study the "cores" and other records brought back by the *Atlantis*.

A core is a sample of ocean-bottom ooze which is obtained by lowering a hollow pipe by cable to the ocean floor. A weight at the top speeds the plunge of the pipe into the ooze. It is then pulled up to the ship.

Largest Cores Ever Taken by Americans

On the trip, a new coring tube 40 feet long and weighing 800 pounds took the largest cores ever obtained from the ocean floor by American oceanographers. The prize core measured 30 feet, 10 inches.

A 30-foot core taken in the first plunge of this tube was apparently composed entirely of so-called globigerina ooze, or the soft mud of the ocean floor. It was followed later by others showing layers of quartz grains and heavy minerals—fair material for geologists' laboratory research.

Estimating that sediment is deposited at the rate of an inch in 2,000 years, the scientists conclude that the 30-foot-10-inch core provides a 740,000-year cross-section of marine geology.

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semicircle of rock cliff 250 feet high. Large sculptures represent Buddha, and delicate frescoes portray legendary experiences of his reincarnations. At least 16 of the caves contain scenic paintings.

At Ellora, the massive Kailas temple built for Siva, important Hindu deity, stands out among carved rock walls wrought by Buddhists, Jains, and Hindus. Close to Hyderabad city are the ruins of the fortress of Golconda, once a city of a million people. The name is romantically associated with some of the largest Indian diamonds, including the Koh-i-noor of the British crown. Golconda was a leading center for cutting and polishing the stones.

NOTE: Hyderabad may be located on the Society's map of India and Burma.

For additional information on India and its princely states, see "Feudal Splendor Lingers in Rajputana," in the *National Geographic Magazine* for October, 1948; "Delhi, Capital of a New Dominion," November, 1947; "India Mosaic" and "India's Treasures Helped the Allies," April, 1946; "India—Yesterday, Today, and Tomorrow," October, 1943*; "Life with an Indian Prince," February, 1942; and "In the Realms of the Maharajas," December, 1940.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, November 3, 1947, "Hyderabad and Kashmir Are India Opposites."

LAWRENCE COPLEY THAW

THIS HYDERABAD WEAVER TURNS OUT CLOTH NOT BY THE YARD, BUT BY THE FOOT

His toes are as helpful as fingers in weaving threads of pure gold and silver into resplendent cloth. Hyderabad's nizam, often considered one of the world's richest men, sponsors such "cottage industries" for the welfare of his people. His state produces food in self-sufficient quantities and ranks third in India in cotton production.

Volunteer Firemen Honored by Stamp

FOR big-city folk who imagine that volunteer fire departments went out with the horse-drawn fire wagon, a new commemorative stamp, released October 4, is a reminder that the volunteers still overwhelmingly outnumber paid fire fighters throughout the country.

It is estimated that there are about 750,000 American volunteer firemen, compared with perhaps 100,000 full-time professionals. The volunteers largely serve rural districts and small towns. They respond in many metropolitan suburbs, however, including some of New York's.

Franklin Fought Fire

Dover, capital of Delaware, where the new stamp was put on first-day sale, has such a fire department. So have all other Delaware communities except Wilmington. In fact, the bill authorizing the stamp was introduced by a Delaware congressman whose own home had recently been saved by volunteer fire fighters.

A pioneer leader in American fire fighting was Peter Stuyvesant, Dutch governor of Nieuw Amsterdam (New York), who is pictured on the commemorative stamp as "organizer of the first volunteer firemen in America." In 1736, patriot Benjamin Franklin helped set up Philadelphia's volunteer brigade known as the Union Fire Company. It served for more than 80 years, including the years of the American Revolution.

Around the middle 1700's—long after England had organized fire-insurance companies as a result of London's devastating fire in 1666—similar firms began to spread in the United States. As in England, the American companies used identifying fire marks, a sort of coat-of-arms plaque, placed on protected properties.

Although the American insurance concerns were less directly linked with the volunteer fire fighters than was the case in England, where insurance companies set up their own fire brigades, the American firms offered considerable financial support to volunteer groups.

Assistance to Everybody

This early system developed some favoritism toward insured property and caused rivalry between different brigades that often led to fisticuffs when the fire call sounded.

Eventually, most volunteer groups agreed to lend assistance wherever it was needed, regardless of special interest. As a result, full cooperation has been the rule for many decades.

As populations grew beyond the scope of volunteer companies, city governments took over the fire-fighting job. Philadelphia's volunteers were replaced by a full-time department in 1870. In New York City, volunteers served until 1865, a year later than in Washington, D. C.

Between the primitive hand bucket of the early days and the fast trucks, pressure hoses, chemicals, and hydraulic ladders of today, fire-fighting equipment (illustration, next page) underwent a colorful evolution, with the horse long an important part of the picture.

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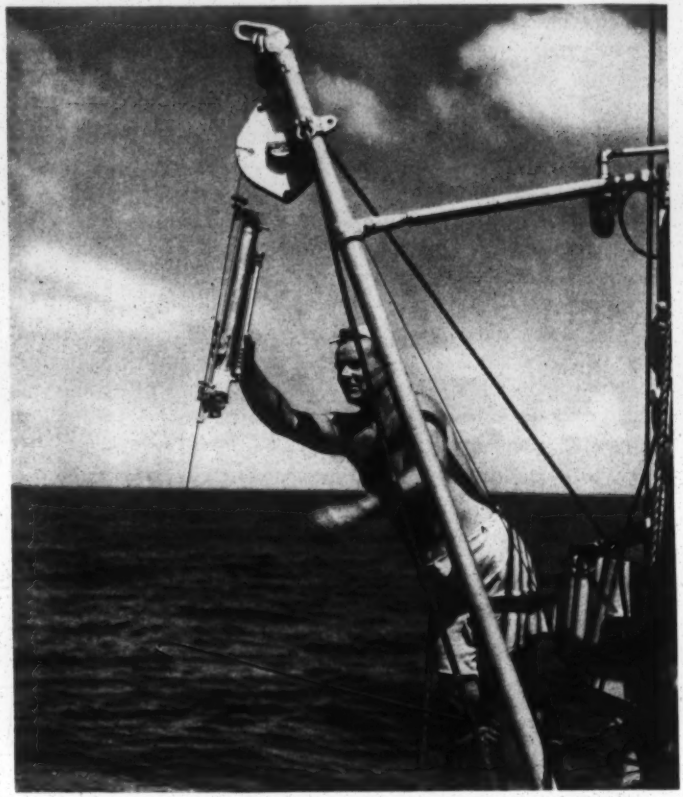
In mid-August the *Atlantis* put in briefly at Ponta Delgada in the Azores. Then, after a 350-mile run southwest, the party set to work on a spectacular undersea Matterhorn on which it had concentrated a year earlier. From slopes and crest of this peak, rock-dredge teams brought up igneous rock samples, sponges, and Gorgonians. In addition, fossiliferous sedimentary rock not present in 1947 hauls was dredged up.

Echo-sounding equipment was at work constantly on the voyage, recording contours of submarine mountains, valleys, and plains. Temperature (illustration, below) and salinity measurements were carried on. Net tows added further to data on the concentration at varying depths of the minute organisms called plankton. These small nets of silk collect two million plankton in a 10- to 15-minute tow.

NOTE: For additional information, see "Exploring the Mid-Atlantic Ridge," in the *National Geographic Magazine* for September, 1948; and "Atlantic Expedition Studies Undersea Ridge," in the GEOGRAPHIC SCHOOL BULLETINS, October 13, 1947.



DON FAY

THIS APPARATUS BRINGS UP OCEAN SAMPLES AND SUBSURFACE TEMPERATURES

A metal flask and thermometer (by man's thumb) are sent down from the "Atlantis" by cable. At desired depth a "messenger" slides down to close the flask and invert the thermometer. This traps a water sample and breaks the mercury thread to give a temperature reading. Several of these instruments are attached to the same cable, at intervals.

Bulletin No. 5, October 11, 1948

Yorktown Battle Had "Modern" War Features

YORKTOWN'S Surrender Field, where the six-and-a-half-year-old echoes of the "shot heard round the world" finally died out in 1781 as Lord Cornwallis capitulated to General George Washington, is now publicly owned and preserved at last as a national shrine.

The 13-acre field, to which the defeated English army trudged between ranks of American and French troops to lay down their arms, has been added to the Colonial National Historical Park. This National Park Service reserve protects many of tidewater Virginia's most noted landmarks in the Jamestown-Williamsburg-Yorktown area.

One of the Climaxes of History

Yorktown lies at the juncture of the tidal York River and Chesapeake Bay, about 30 miles northwest of Norfolk, Virginia. It is today a village of 521 inhabitants. The peninsula it is on (formed by the York and James rivers) figured in the "peninsula battles" of the Civil War as well as in the Revolution.

For a battle that ranks as one of the climaxes of history, Yorktown was a comparatively bloodless and undramatic victory. It really was a siege—a comparatively short one. Washington and his French allies bottled up Cornwallis in the tiny port on September 28 and the surrender took place on October 19.

Action was confined to the taking of two British redoubts—one assault being led by Alexander Hamilton—and an unsuccessful enemy sortie against two French batteries (illustration, inside cover). The English lost 156 men in the siege; allied losses were 85 killed.

But a study of the entire campaign which ended at Yorktown and gave the colonies their freedom shows General Washington as a gifted strategist and a great leader. And there were some features of the operation that sound as though they belonged to World War II rather than to the far-off War for Independence.

Germ Warfare Tried

First of all, Washington was Supreme Allied Commander of the combined land and sea forces. He also employed amphibious operation tactics, moving his army from the head of Chesapeake Bay by boats to seize a beachhead near Williamsburg. There, from the enemy's rear, he began the encirclement of Yorktown. In the meantime, the French fleet was standing guard at the mouth of the Chesapeake to keep British reinforcements from reaching Cornwallis.

But the able British general had a few tricks up his sleeve, too—one of which may have been an elementary form of germ warfare. A Dr. James Thacher, who left a careful eye-witness account of the events, wrote, "The British have sent from Yorktown a large number of Negroes sick with the smallpox, probably for the purpose of communicating the infection to our army."

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In museums and private collections, devoted fire followers have gathered fascinating assortments of old fire marks and helmets, Currier and Ives prints, and other mementoes. Retired fire engines, both hand- and steam-pumped, are generally the high points of such exhibits.

Like the planes of World War II, the old "enjines" were fabulously named and flamboyantly decorated. Some bore designs of Venus and cherubs, others of tigers' heads. They were given such names as Bambazoola, Black Joke, White Ghost, Mankiller, and Old Wreath of Roses.

J. BAYLOR ROBERTS

JUMPING FROM AN EIGHT-STORY TOWER IS ROUTINE TRAINING FOR TODAY'S FIREMEN

To a rookie on his first plunge, the net held by his buddies looks about the size of a half-dollar. This skilled crew is part of the paid fire-fighting force of Memphis, Tennessee.

Geographic's New Map of Washington, D. C., Wins Wide Acceptance

The first up-to-date map of the nation's capital since prewar days, released as a supplement to the National Geographic Magazine for September, 1948, is exciting favorable comment not only in the Washington area, but over the country as a whole.

Of interest to anyone who has ever visited Washington or who hopes to in the future, the two-sided, eight-color map especially lends itself to school study of the nation's capital. It is legibly designed and complete in its detailing of all public buildings, monuments, famous landmarks, and parks. The map is two charts in one, being printed on both sides of a sheet 31¾ inches by 21¼ inches.

Price: In United States and possessions, 50¢ each on paper; $1 on linen. Elsewhere, 75¢ on paper; $1.25 on linen. Postage prepaid.

Cornwallis himself became ill, not from smallpox, but, according to Dr. Thacher, from giving "himself up entirely to vexation and despair" at his inevitable defeat. He never appeared on Surrender Field; "pretending indisposition, he made General O'Hara his substitute" as his beaten army marched with "slow and solemn step" to the appointed surrender spot just outside town.

There, Washington designated General Benjamin Lincoln to receive the sword symbolic of complete defeat—a scene familiar to the nation because of John Trumbull's painting which hangs in the Capitol at Washington, D. C., and which is reproduced in so many American history textbooks.

NOTE: Yorktown may be located on the Society's map of the Southeastern United States.

For additional information, see "Tidewater Virginia, Where History Lives," in the *National Geographic Magazine* for May, 1942.

B. ANTHONY STEWART

FROM YORK RIVER OOZE, THIS BRITISH GUN WAS SALVAGED AFTER A 150-YEAR "SLEEP IN THE DEEP"

Though Cornwallis had many ships at his command during the Siege of Yorktown, he was outnumbered by the French fleet under Admiral de Grasse. He sank several of his own vessels to obstruct a possible landing operation by the French. Other English ships were hit by allied cannoneers. Shortly before Cornwallis asked for a truce, on October 17, 1781, he tried to escape by ship to Gloucester Point, directly across the York River, but his little fleet was scattered by a storm. Here, in a small Yorktown museum, is reproduced a section of an 18th century frigate's gun deck, showing how the cannon was held in place by ropes and ring bolts.